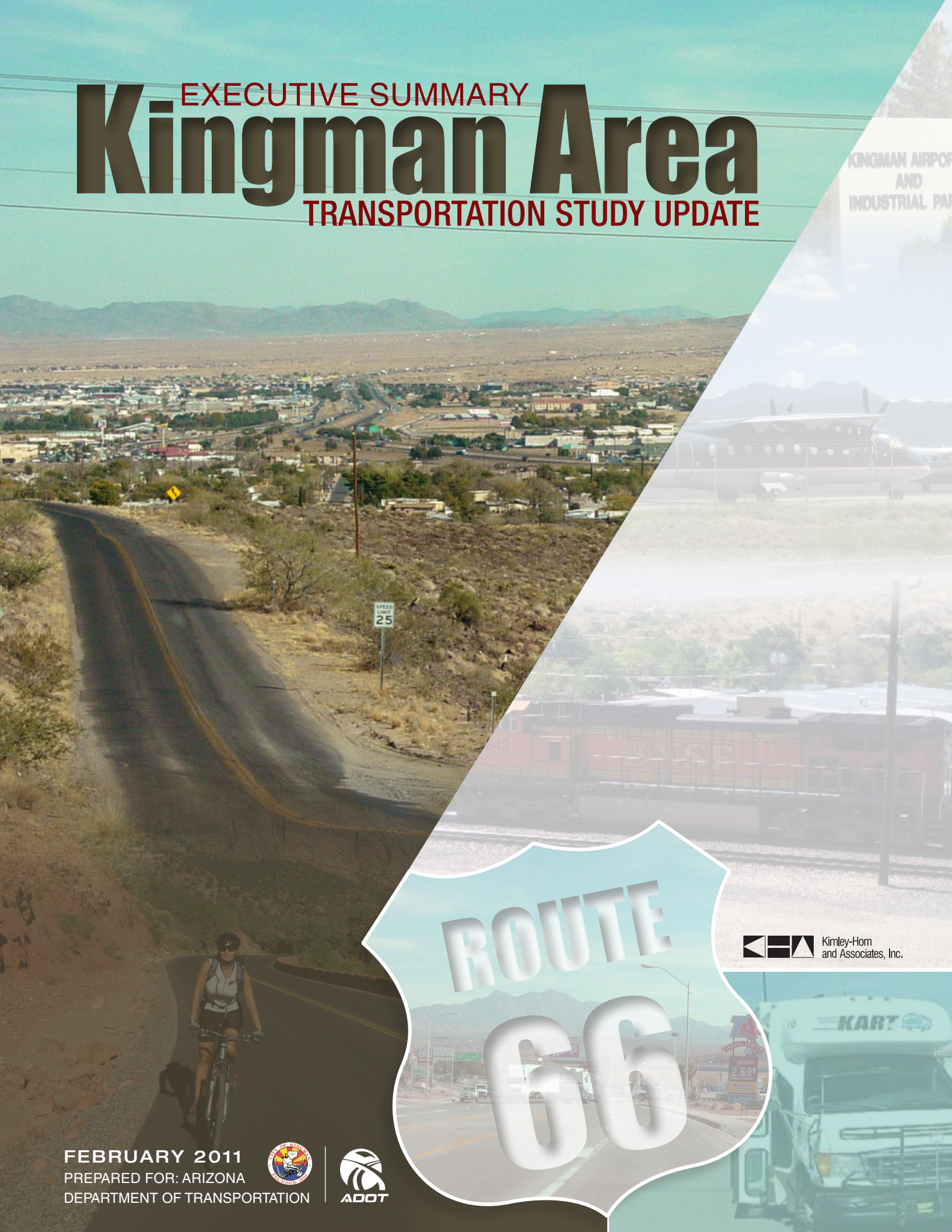
EXECUTIVE SUMMARY

Kingman Area

TRANSPORTATION STUDY UPDATE



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PREPARED FOR: ARIZONA DEPARTMENT OF TRANSPORTATION

ADOT

Kingman Area Transportation Study Update

ADOT MPD Task Assignment 14-10
PGTD 0448
Contract # T08-49-U0001

EXECUTIVE SUMMARY

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1 INTRODUCTION

The Arizona Department of Transportation (ADOT), in cooperation with the City of Kingman and Mohave County, initiated a study to update the 2005 Kingman Area Transportation Study (KATS) utilizing the Planning Assistance for Rural Areas (PARA) program. The purpose of the PARA program is to assist counties, cities, towns, and tribal communities in addressing a broad range of multimodal transportation planning issues.

The principal purpose of this study is to update the 2005 KATS. The study will result in a plan of transportation improvements for 5-year (short-range), 10-year (mid-range), and 20-year (long-range) planning horizons. The recommendations are multimodal, considering roadways, non-motorized transportation modes (bicycles and pedestrians), and transit components.

This document, the *Kingman Area Transportation Study Update Executive Summary*, is a companion to the *Kingman Area Transportation Study Update Final Report*. It provides a brief summary of current and future conditions, transportation needs and issues, recommended improvements, and the implementation plan. More detailed information on each topic can be found in the *Final Report.*

The study area encompasses the entire City of Kingman (City) plus portions of unincorporated Mohave County (County), as shown in **Figure 1**. This study area is significantly larger than what was included in the 2005 KATS, having been expanded from 59 square miles to 165 square miles.

2 CURRENT CONDITIONS

This chapter summarizes data obtained on current conditions to help identify current needs and deficiencies of the existing transportation network.

2.1 Land Uses

An understanding of current land uses is important for modeling travel characteristics. Land use information is converted to population and employment data for use in the travel demand model. Typically, population produces trips while employment attracts trips in the travel demand model.

The study area is currently comprised of various land uses, including commercial, industrial, residential, and public land uses. Major traffic generators in the study area include the Kingman Airport and Industrial Park, Kingman Regional Medical Center, Hualapai Mountain Medical Center, government services and commercial businesses in the downtown area, and the shopping areas along Stockton Hill Road north of Detroit Avenue.

Public lands are also present within the study area. Public land uses/ownership within the study area include: City, County, State, and Federal government facilities, the Cerbat Foothills Recreation Area (owned by the Bureau of Land Management and the City), State Trust land (owned by the Arizona State Land Department, or ASLD), parks, open space, and schools.

The 2010 population estimates for the 2005 KATS study area were obtained from the Arizona Department of Commerce. The population within the expanded portion of the study area was developed by estimating the number of housing units factored by the average household size for the City of Kingman from the 2000 census. The resulting study area population estimate for 2010 is 52,049. A comparison of 2000 population estimates and 2010 population estimates is provided in **Table 1**.

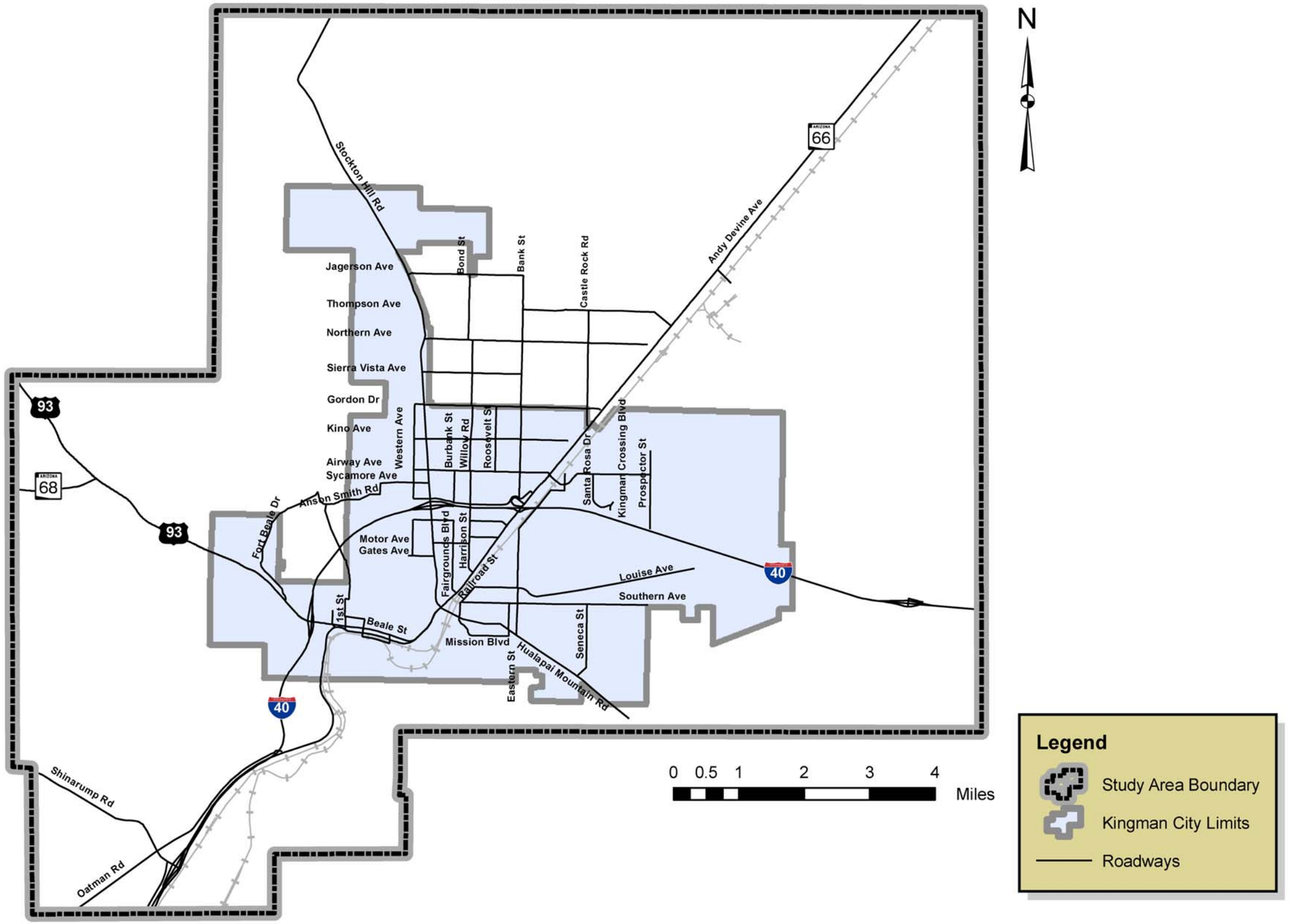


Figure 1: Study Area

Table 1. 2000 and 2010 Study Area Population

Portion of Study Area	2000 Population	2010 Population	2000-2010 Annual Growth Rate
Population within the City limits	20,069	31,722	4.68%
Population within the adjacent unincorporated land	14,810	17,875	1.90%
Population within the expanded portion of the study area	N/A	2,452	N/A
Total	**34,879**	**52,049**	

Sources: 2000 Census, Arizona Department of Commerce

The employment types in the Kingman area include government, medical, manufacturing, and retail. Employment data for 2010 was estimated using a ratio of employment to population of 0.38. This is the same ratio that was used in the 2005 KATS. The resulting 2010 employment estimate for the study area is 19,779.

2.2 Roadways

The existing roadway network in the study area is composed of an interstate highway, a U.S. highway, two state highways, an arterial street system, and collector and local streets. This study focuses on all of these categories with the exception of local streets.

2.2.1 Traffic Volumes

Traffic count data was obtained to document the volume of traffic on study area roadways. Daily traffic volume data from 2008, 2009, and 2010 on selected roadway segments was provided by the City, County, and ADOT and is displayed in **Figure 2**. Peak period intersection movement volumes were collected at 17 locations.

2.2.2 Traffic Levels of Service

Roadway traffic operations are defined and categorized by the amount of delay experienced by an average driver. The operations are categorized by a grading system called level of service (LOS), which has a letter designation ranging from A (no delay) to F (severe congestion). These levels are visually depicted in **Figure 3**.

LOS is generally defined as follows:

- LOS A represents free flow.
- LOS B represents reasonably free flow, but the presence of other users in the traffic stream begins to be noticeable.
- LOS C represents stable flow. The operation of individual users is somewhat affected by interactions with others in the traffic stream.
- LOS D represents high-density but stable flow. The operation of individual users is significantly affected by interactions with others in the traffic stream.
- LOS E represents unstable flow, meaning operating conditions are at or near the capacity level. The operation of individual users is heavily affected by interactions with others in the traffic stream.
- LOS F represents forced or breakdown flow, meaning operating conditions have exceeded the capacity level. The operation of individual users is severely affected by interactions with others in the traffic stream.

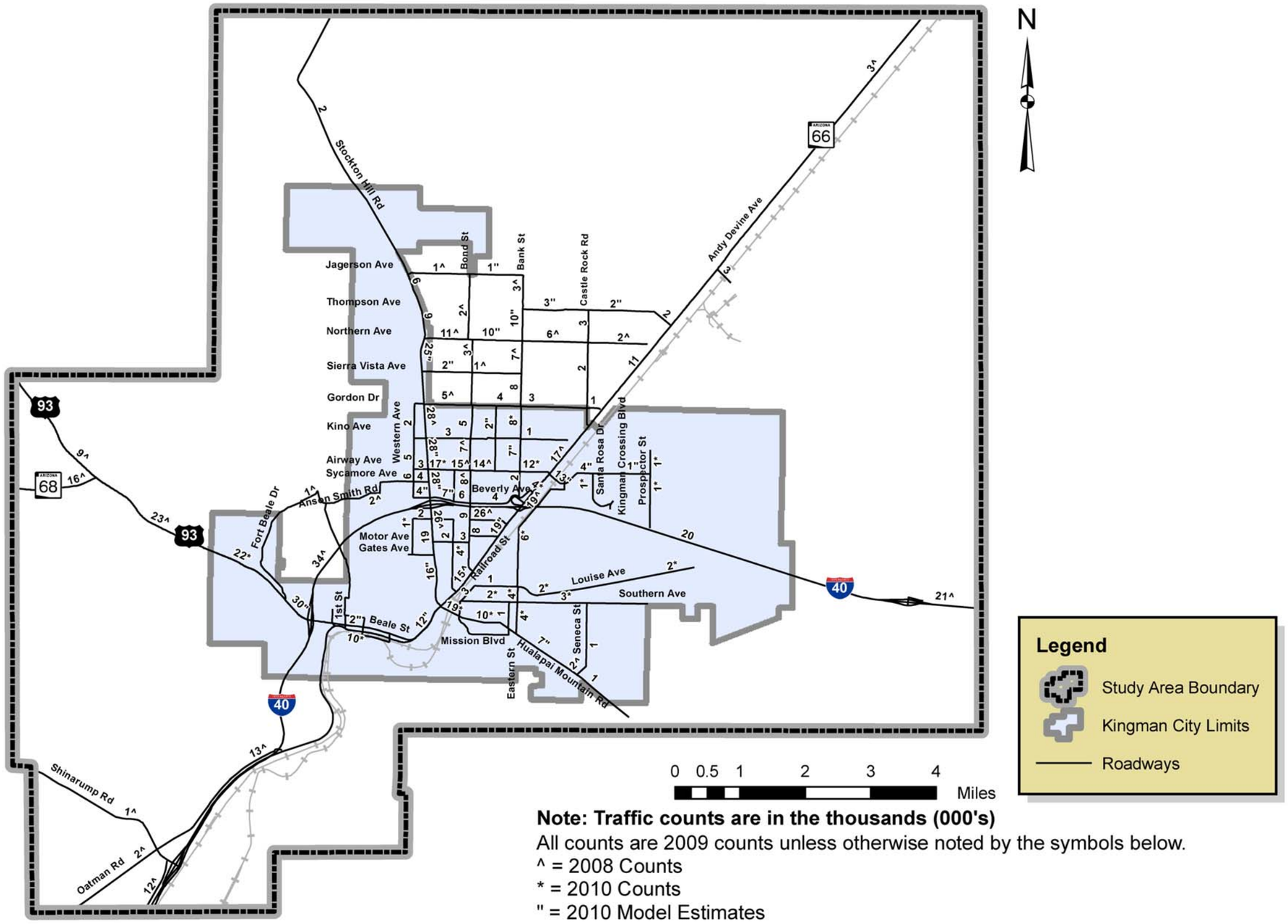
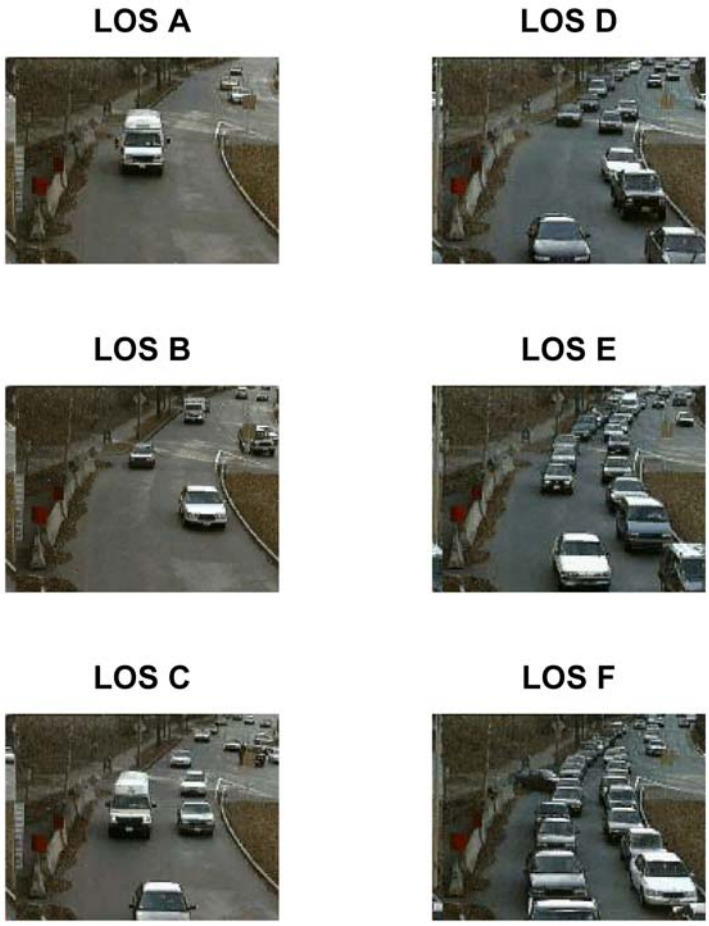


Figure 2: Current Daily Traffic Volume Counts



Source: Florida DOT Quality/Level of Service Handbook, 2002

Figure 3: Depictions of Traffic Levels of Service

For the Kingman area, roadways and intersections operating at LOS A, LOS B, and LOS C are considered to be acceptable and do not require capacity improvements.

A review of the current daily volumes compared to daily volume LOS thresholds indicates that no study area roadway segments currently exceed the daily volume threshold for LOS D. The only roadway segments that currently exceed the daily volume threshold for LOS C are Stockton Hill Road between Northern Avenue and Motor Avenue, and US 93 between Fort Beale Drive and I-40.

Table 2 shows the study area intersections that currently have a critical v/c ratio corresponding to LOS D or worse based on the results of the peak hour capacity analysis. Four intersections along Stockton Hill Road, plus both ramp intersections at the I-40/US 93 interchange, have a v/c ratio corresponding to LOS E during the midday peak hour. Additional capacity is likely needed at these intersections. The Stockton Hill Road and I-40 WB Ramps intersection has a v/c ratio that corresponds to LOS D during the midday peak hour and more detailed analysis should be conducted to determine if additional capacity is needed.

Table 2. Intersections with Current Need for Improvements

Intersection	V/C Ratio	LOS Value
Stockton Hill Road and Airway Avenue	0.96	E
I-40 EB Ramps and US 93	0.92	E
I-40 WB Ramps and US 93	0.90	E
Stockton Hill Road and I-40 EB Ramps	0.90	E
Stockton Hill Road and Sycamore Avenue	0.89	E
Stockton Hill Road and Andy Devine Avenue	0.86	E
Stockton Hill Road and I-40 WB Ramps	0.83	D

2.2.3 Crash Analysis

A review of recent crash history was completed and the roadway segments and intersections with the highest crash rates were identified. In the five-year period from 2004 to 2008, there were a total of 4,218 crashes in the study area. The ten study area roadway segments and ten study area intersections with the highest crash rates are shown in **Figure 4**.

2.2.4 Transit

Public transit services are currently provided in the Kingman area through the Kingman Area Regional Transit (KART) system. KART operates four fixed routes on an hourly basis. With advance reservations, curb-to-curb service is also provided within ¾-mile of the fixed routes to the general public, seniors, and disabled persons.

Specialized transit providers operate in the Kingman and Mohave County area. These include the Mohave Mental Health Center, which provides transportation services to support client needs, and WestCare, which contracts with child protective services to provide services to and from appointments, visits, school, and work within Mohave County.

2.2.5 Rail

The railroad tracks that extend through the City of Kingman provide for both freight and passenger services. According to the Federal Railroad Administration (FRA) Office of Safety Analysis, up to 81 trains pass through Kingman each day. The Burlington Northern Santa Fe Railway Company (BNSF) provides freight services and Amtrak provides passenger services in Kingman. Both service providers use the BNSF tracks, which run from Los Angeles to Chicago as part of the BNSF Transcon transcontinental main line. The train station in downtown Kingman provides a stop for Amtrak's "Southwest Chief" route, which has one train in each direction daily. In fiscal year 2010, the annual ridership at the Kingman Amtrak station was 10,160 persons according to Amtrak. There are six grade-separated roadway crossings and three at-grade roadway crossings of the mainline railroad tracks in the study area.

2.2.6 Bicycles and Pedestrians

Bicycle and pedestrian facilities are an integral part of a multimodal transportation network in that they provide options for travel (which is especially critical for travelers who cannot drive). Elements that make up the bicycle network include designated bike routes, striped bike lanes, paved shoulders along roadways, wide curb lanes, multi-use paths, and sidewalks. Pedestrian networks are comprised of sidewalks, trails, and multi-use paths.

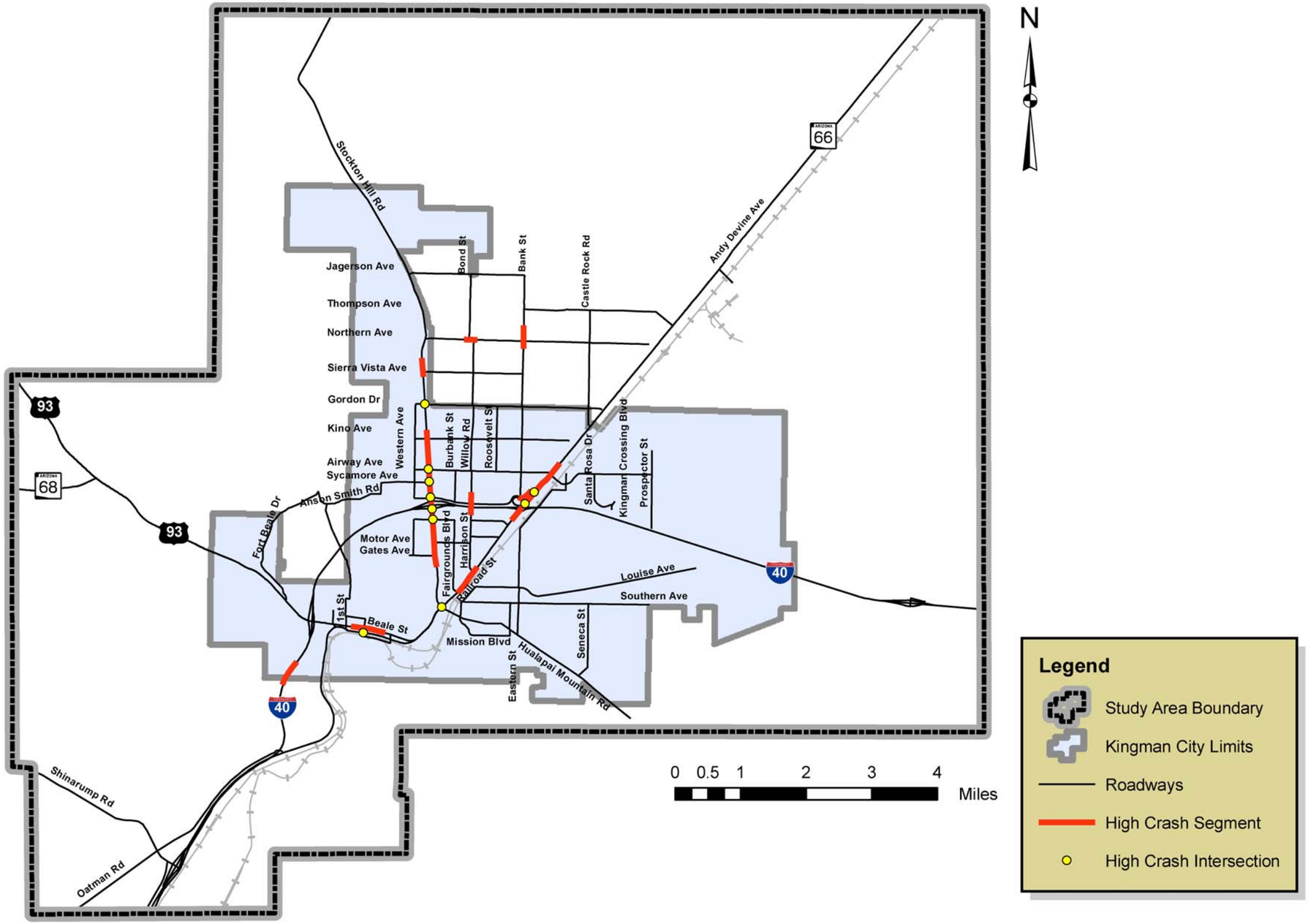


Figure 4: Roadway Segments and Intersections with Highest Crash Rates

2.2.7 Kingman Airport

The Kingman Airport is located five miles north of I-40 along SR 66 adjacent to the main BNSF railroad tracks. The Kingman Airport encompasses nearly 3,000 acres. Airport facilities include two intersecting runways (6,831 and 6,725 feet long), two helipads, several taxiways, a 2,640 square foot passenger terminal, 21 hangar facilities, and several parking aprons.

According to the 2006 *Kingman Airport Master Plan*, the total number of aircraft based at the Kingman Airport is approximately 305. Commercial air service is provided by Great Lakes Airlines, with service to Las Vegas, Nevada and Farmington, New Mexico.

The Kingman Airport currently has approximately 55,000 annual aircraft operations. Aircraft operations consist of:

- 60% local general aviation
- 37% transient general aviation
- 2% commercial
- 1% air taxi
- < 1% military

3 FUTURE CONDITIONS

This chapter summarizes the anticipated future conditions for the Kingman area transportation network. The horizon year for this study is 2030.

3.1 Land Uses

Future commercial land uses are expected to be located in the same areas as existing commercial land uses, namely along Stockton Hill Road, Andy Devine Avenue, Bank Street, Armour Avenue, Airway Avenue, Northern Avenue, and in the downtown area along Beale Street. The area east of Andy Devine Avenue is expected to see significant increases in commercial land use near the proposed Kingman Crossing Boulevard and Rancho Santa Fe Parkway traffic interchanges on I-40 when the interchanges are built.

Future industrial land uses will follow the same pattern as existing industrial land uses, and occur along Bank Street and Armour Avenue and at the Kingman Airport and Industrial Park.

Residential developments are anticipated to replace vacant land primarily on the northern and eastern edges of the City limits. Residential areas closer to the downtown area are anticipated to see increased densities over time as infill development and redevelopment occurs.

Most of the public land use/ownership within the study area is anticipated to remain unchanged, except the State Trust lands, which could be sold by ASLD to developers.

3.2 Population and Employment

The 2030 population for the study area is estimated to be 77,363. This represents a compound annual growth rate of 2.0% compared to the 2010 population. The 2030 population estimate is comprised of three components:

- The population within the City limits
- The population within the adjacent unincorporated land
- The population within the expanded portion of the study area

Table 3 compares the 2010 and 2030 population estimates for the three components of the study area population.

Table 3. 2010 and 2030 Study Area Population

Portion of Study Area	2010 Population	2030 Population	2010-2030 Annual Growth Rate
Population within the City limits	31,722	50,872	2.39%
Population within the adjacent unincorporated land	17,875	22,911	1.25%
Population within the expanded portion of the study area	2,452	3,580	1.91%
Total	**34,879**	**77,363**	**2.00%**

Sources: 2000 Census, Arizona Department of Commerce

Employment data for 2030 was estimated using the same 0.38 ratio of employment to population that was used to estimate 2010 employment, resulting in an estimated 2030 study area employment total of 29,397.

3.3 Traffic Volume Forecasts

A travel demand model was developed for the Kingman area to provide a tool for estimating future traffic volumes. The model utilizes population and employment data, typical vehicle trip generation characteristics, and roadway network information such as number of through lanes and speed limits to estimate traffic volumes on the roadway network. The model estimates traffic volumes by determining the number of vehicle trips produced and attracted by the various land uses and assigning those trips to the adjacent roadway network.

A 2010 baseline year model was developed using the 2010 population and employment data. The 2010 volumes generated by the model were compared to the available historical traffic count data and model parameters were adjusted until the 2010 model volumes were similar to the historical counts. After the 2010 conditions model was calibrated, a 2030 horizon year baseline model was developed using the 2030 population and employment data. The 2030 volumes generated by the model were reviewed for reasonableness and minor adjustments were made as needed. **Figure 5** shows the projected baseline 2030 study area traffic volumes.

3.4 Roadway Levels of Service

Future roadway needs were identified by comparing the projected baseline 2030 daily traffic volumes to daily volume LOS thresholds to determine which roadways are approaching their maximum capacity. Roadway segments with existing daily volumes below the maximum daily volume threshold for LOS C likely do not need additional through capacity, while roadway segments with existing daily volumes above the maximum daily volume threshold for LOS D will probably need additional through capacity. For roadway segments with existing daily volumes between the maximum daily volume thresholds for LOS C and LOS D, more detailed analysis should be conducted to evaluate intersection geometry, signal timing, and number and spacing of driveways to determine if additional through capacity is needed.

3.5 Public Transit

Future public transit services in the study area are anticipated to be provided by KART. There are no "committed" expansion projects for additional KART routes or new public transit facilities such as bus

bays and commuter park-and-ride lots. In fact, if the recent decline in available public transit funding continues, KART has plans to further reduce service hours.

3.6 Rail

Railroad traffic is anticipated to increase in the future as population and employment increase in the United States. The City has plans to provide several additional grade-separated roadway crossings of the railroad tracks but funding has not been secured for any of these crossings.

The City has had preliminary discussions about establishing railroad "quiet zones" in accordance with FRA requirements at the three downtown Kingman at-grade crossings. When a quiet zone is established, trains are not permitted to blow their horns within the quiet zone except in emergencies.

There has been discussion and planning at the national level regarding high-speed passenger rail. High-speed rail travel is generally economically competitive with highway and air travel between cities that are 100 to 600 miles apart. According to the *2010 Arizona Statewide Rail Framework Study*, there is great potential to connect the cities of Phoenix and Las Vegas with a high-speed rail corridor, and the likely route would pass through the Kingman area.

3.6.1 Bicycles and Pedestrians

At the national level, there is emphasis on complying with the Americans with Disabilities Act (ADA) and providing more bicycle and pedestrian facilities along roadways to create "complete streets". "Complete streets" are designed to function for all users to safely and effectively move along and across a "complete street" (see www.completestreets.org).

Elements of a complete street include sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible transit stops, frequent crossing opportunities, median islands, accessible pedestrian signals, curb extensions, and more. A complete street in a rural area may have different elements, but should achieve the same goal.

3.6.2 Kingman Airport

The *2006 Kingman Airport Master Plan* recommends constructing a new terminal building, several new taxiways, and an extension of Runway 3-21. The master plan also recommends reserving the lands south and east of the airport along the edge of airport property for potential industrial uses.

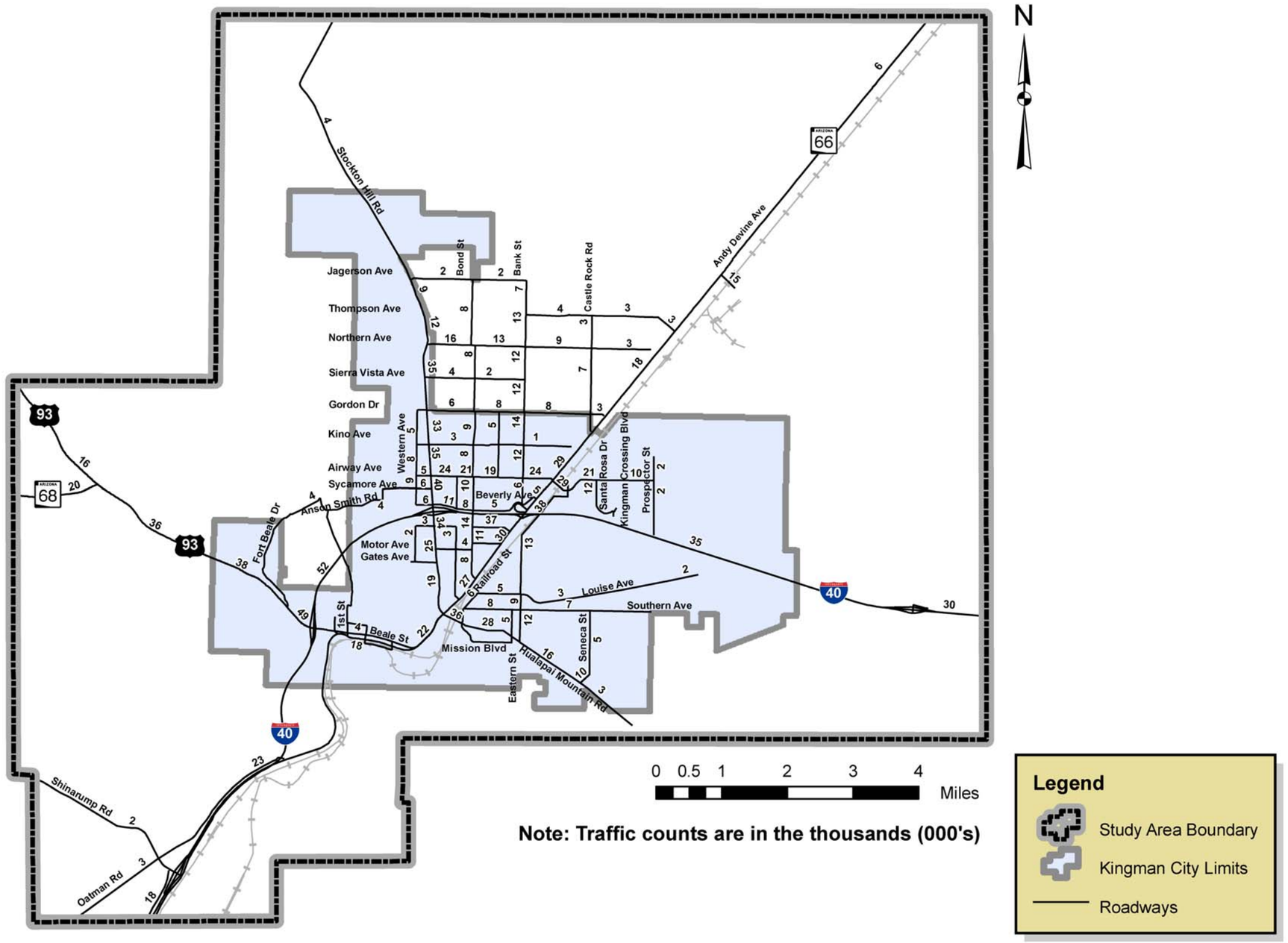


Figure 5: Projected Baseline 2030 Daily Traffic Volumes

4 IDENTIFIED CURRENT AND FUTURE NEEDS

The identified transportation system needs result from a variety of factors, including roadway congestion, high crash areas, physical barriers such as I-40 and the railroad, traffic control devices, land development and growth projections, gaps in bicycle and pedestrian facilities, and inadequate transit service. As a first step in determining alternatives and solutions, issue areas and deficiencies were documented.

4.1 Existing and Future Capacity Deficiencies

Capacity deficiencies were evaluated for intersections and roadway segments using a LOS C threshold based on existing traffic count data and 2030 traffic forecasts. The roadway segments with future LOS D or worse are shown in **Figure 6**. In addition to the intersections noted previously in Table 2 with existing LOS D or LOS E, the major intersections within the identified capacity-deficient roadway segments may need additional capacity improvements to provide acceptable intersection traffic operations through 2030. Future traffic signals may also be warranted at some of the intersections within the identified capacity-deficient roadway segments.

4.2 Safety

The ten high-crash rate study area roadway segments intersections identified previously in Figure 4 need to be evaluated to determine if crash patterns can be identified that are susceptible to correction by potential safety countermeasures.

4.3 Access

The railroad and I-40 are transportation corridors that have created physical barriers for other transportation facilities and restrict access – including emergency access – to various parts of the region. There are a limited number of crossings of these facilities, and in the case of the railroad, some of the crossings are at-grade crossings. As a result, the choice of travel routes is limited.

4.4 Public Comments/TAC Input

Comments were solicited from the public during the formal public meetings and from the TAC following the analysis of existing and future conditions. The highlights of the comments are summarized below.

- Need safe bicycle facilities along existing roadways
- Improve local transit system
- Relieve congestion on north-south corridors
- Identify right-of-way needs early
- Improve business access points on Stockton Hill Road
- Relieve congestion on Stockton Hill Road and West Beale (truck stop area)
- Provide right-turn lane from West Beale to EB I-40
- There is a lack of facilities and a need for alternative modes
- Need access management
- Develop strategies to reduce auto trips
- Get the residents to pass a City property tax
- Securing funding for improvements is critical
- Support land use policies that de-emphasize auto use – emphasize system management
- Consider roundabouts instead of signals
- Need additional interchanges and railroad crossings

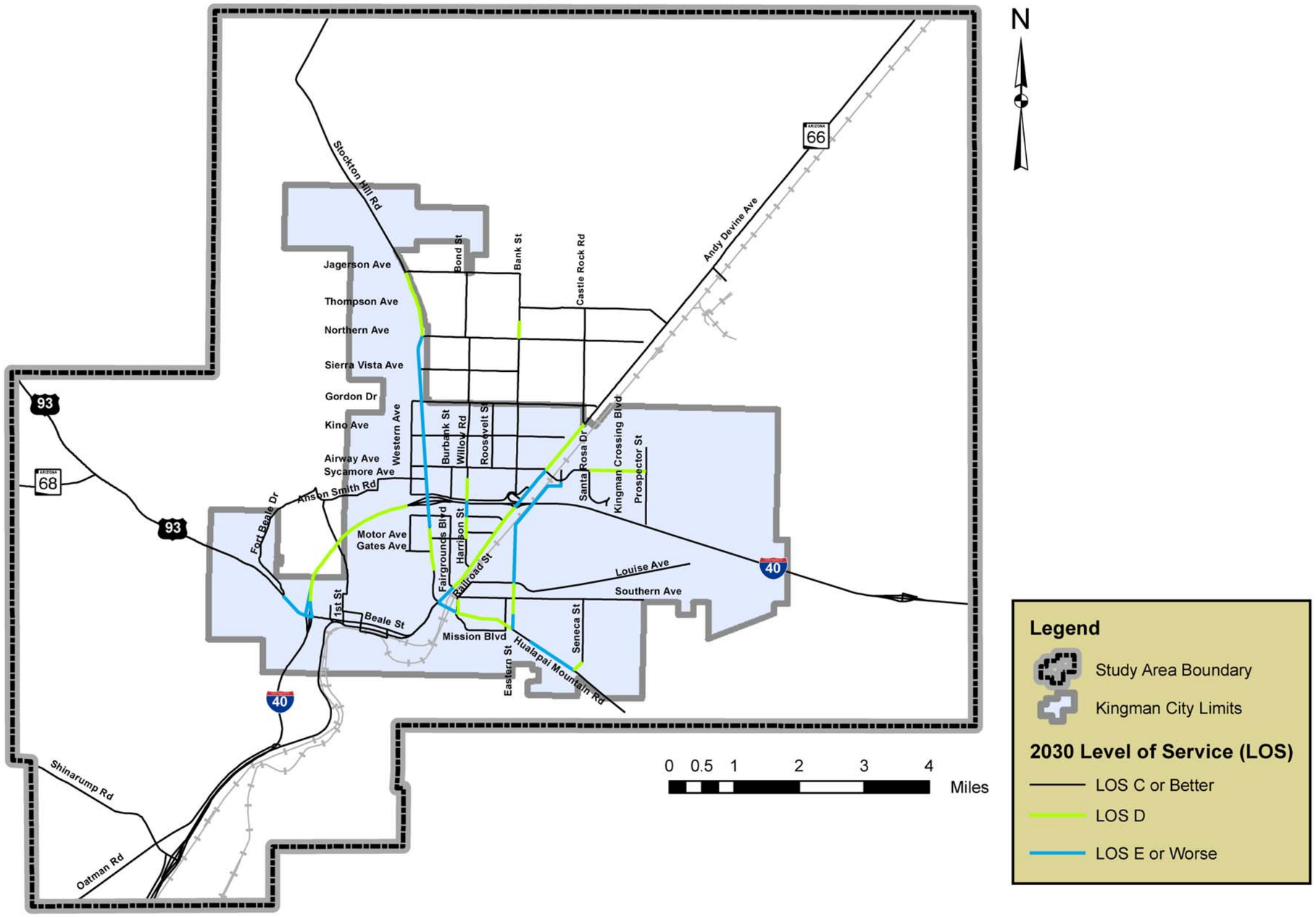


Figure 6: Baseline 2030 Roadway Segments with LOS D or LOS E

4.5 Accessibility and Land Development

Good access and availability of services can provide a direct economic benefit. Currently, the majority of land north of I-40 and east of the railroad is vacant. Existing access to and from this area is limited to Eastern Street and Airway Avenue. Additional access will increase the development potential of this area. Additionally, the Kingman Airport Authority has indicated the need for additional airport access in order to be able to attract new businesses.

4.6 Transit

New and stable funding sources are needed to replace the recent loss of state funding for public transit operations and to ensure the long-term viability of KART. Bus pullouts are desired, as are "complete streets" cross-sections that better accommodate transit operations. As population and employment grow and sustainable transportation becomes a bigger issue, expansion of KART's routes and an increase in service frequency will likely be needed.

4.7 Rail

More grade-separated crossings are needed to improve mobility across the railroad tracks. To better promote livability and sustainability, particularly in the downtown area, the City should pursue the establishment of railroad quiet zones.

The City should monitor the development of a high-speed rail line between Phoenix and Las Vegas and promote the advantages of a stop in Kingman.

4.8 Bicycles and Pedestrians

As population and employment grow and sustainable transportation becomes the standard, additional bicycle and pedestrian facilities such as bike lanes, wide curb lanes, paved shoulders, and sidewalks will be needed. There is a need for a clearly-defined, continuous bicycle and pedestrian network.

"Complete streets" cross-sections should be developed to better accommodate bicycle and pedestrian travel. Grade-separated crossings of major roadways may be needed at select locations to better promote safety for bicyclists and pedestrians.

Mohave County is pursuing a Safe Routes to School grant to improve bicycle and pedestrian facilities and travel near Manzanita Elementary School. Other school sites in the region would benefit from similar Safe Routes to School grants.

4.9 Kingman Airport

To accommodate anticipated growth in aviation operations, a new terminal building, several new taxiways, and an extension of Runway 3-21 are needed.

5 IMPROVEMENT PLAN

The recommended improvement plan is a multimodal plan that will provide a regional transportation system to meet the needs of the region for the next 20 years. The recommended plan is summarized by mode followed by recommendations for implementation.

5.1 Roadways

The following recommended roadway improvements are grouped in categories by type of improvement. Whenever possible, these roadway improvement projects should incorporate "complete streets" concepts that accommodate multimodal travel and not just automobiles.

A 2030 travel forecasting model run that incorporates the recommended roadway improvement projects was prepared. Only one roadway segment – Stockton Hill Road from I-40 to Airway Avenue – is expected to operate at LOS D when all the roadway improvements are constructed. All other roadways are expected to operate at LOS C or better with the recommended improvements.

5.1.1 Intersection Improvements

- Stockton Hill Road and Airway Avenue
- Stockton Hill Road and Gordon Drive
- Stockton Hill Road/Hualapai Mountain Road and Andy Devine Avenue
- Bank Street and Northern Avenue
- SR 66/Andy Devine Avenue and Armour Avenue
- Andy Devine Avenue and 4th Street

5.1.2 Traffic Signals

Intersections currently controlled by traffic signals should be monitored to ensure that traffic signal timing and phasing is appropriate for traffic conditions at the intersections and revised as needed.

Unsignalized intersections that experience congestion, high crash rates, or major changes in traffic patterns should be studied to determine if traffic signalization may be warranted.

5.1.3 New/Improved Two-Lane Roadways

- Glen Road: Airway Avenue to Gordon Drive (in current City Capital Improvement Program (CIP))
- Central Street: Hualapai Mountain Road to Airfield Avenue
- Seneca Street: Hualapai Mountain Road to Southern Avenue
- Cherokee Street: Cheyenne Avenue to Airfield Avenue
- Cheyenne Avenue: Seneca Street to Cherokee Street
- Dakota Avenue: Central Street to Cherokee Street
- Airfield Avenue: Eastern Avenue to Cherokee Street
- Castle Rock Road: Thompson Avenue to Grace Neal Parkway
- Prospector Street: Thompson Avenue to Grace Neal Parkway
- Western Avenue: Beverly Avenue to Gordon Drive
- Anson Smith Road/White Cliffs Road: Stockton Hill Road to 1st Street
- Fort Beale Drive: Anson Smith Road to US 93
- Southern Avenue: Eastern Street to Rancho Santa Fe Parkway (in current City CIP)
- Rancho Santa Fe Parkway: Hualapai Mountain Road to Louise Avenue (in current City CIP)
- Rancho Santa Fe Parkway: Airway Avenue to Industrial Boulevard (in current City CIP)
- Airway Avenue: Prospector Street to Rancho Santa Fe Parkway
- Industrial Boulevard: Rancho Santa Fe Parkway to Mohave Airport Drive
- Slaughter House Canyon Road: Mission Boulevard to Topeka Street (in current City CIP)

5.1.4 Widen to or New Four Lanes

- Airway Avenue: Western Avenue to Stockton Hill Road
- Rancho Santa Fe Parkway: Louise Avenue to Airway Avenue
- Hualapai Mountain Road: Fripps Ranch Road to Seneca Street
- Gordon Drive: Stockton Hill Road to Bank Street
- Stockton Hill Road: Northern Avenue to Grace Neal Parkway
- Airway Avenue: Sage Street to Kingman Crossing Boulevard
- Harrison Street/Willow Road: Andy Devine Avenue to Airway Avenue
- Eastern Street: Airway Avenue to Hualapai Mountain Road
- Kingman Crossing Boulevard: I-40 to Airway Avenue
- Kingman Crossing Boulevard: I-40 to Airfield Avenue
- Kingman Crossing Boulevard: Airfield Avenue to Southern Avenue
- Beverly Avenue: Stockton Hill Road to Bank Street
- Airway Avenue: Kingman Crossing Boulevard to Rancho Santa Fe Parkway
- Grace Neal Parkway: Stockton Hill Road to SR 66
- Santa Rosa Drive: Kingman Crossing Boulevard to Rancho Santa Fe Parkway

5.1.5 Add Median to Four-Lane Roadway

- Stockton Hill Road: Airway Avenue to Gordon Drive
- Andy Devine Avenue/SR 66: Detroit Avenue to Airway Avenue

5.1.6 Widen to Six Lanes

- Stockton Hill Road: Detroit Avenue to Airway Avenue
- Stockton Hill Road: Airway Avenue to Northern Avenue
- Stockton Hill Road: Andy Devine Avenue to Detroit Avenue
- Andy Devine Avenue/SR 66: I-40 to Gordon Drive
- I-40: US 93 to Stockton Hill Road
- Hualapai Mountain Road: Andy Devine Avenue to Eastern Street

5.1.7 New Connection across I-40

- Fairgrounds Boulevard/Burbank Street

5.1.8 Railroad Crossings/Improvements

- Topeka Street (eastbound tracks)
- Airfield Avenue
- Railroad Quiet Zone

5.1.9 Freeway Interchange Improvements

- I-40/US 93/Beale Street
- I-40 and Stockton Hill Road

5.1.10 New Freeway Interchanges

- I-40 and Rancho Santa Fe Parkway
- I-40 and Kingman Crossing Boulevard

5.2 Transit

The focus of the transit recommendations is to improve the experience of riders and manage system growth in a way that attracts new ridership. Recommended transit improvements include increased frequency, enhanced accessibility, rider comfort and protection, and new routes. Improvements can be incremental, then evaluated and adjusted according to their level of success. The following improvements are recommended for the transit system.

5.2.1 30-Minute Headways

- Improve the frequency on all existing KART routes to 30-minute headways between buses during the peak periods

5.2.2 New KART Routes

- Seneca Street/Kingman Crossing Boulevard: Hualapai Mountain Road to Airway Avenue
- Gordon Drive: Stockton Hill Road to Castle Rock Road
- Kino Avenue: Stockton Hill Road to Bank Street
- Northern Avenue: Stockton Hill Road to Castle Rock Road
- Southern Avenue: Railroad Street to Cherokee Street
- Airport employment area

5.2.3 Bus Pull-Outs and Shelters

- Provide bus pull-outs and shelters on all routes

5.2.4 New Transit Transfer Center

- Identify location for a new transit transfer center

5.2.5 Passenger Rail

- Be an active participant in the discussion for continued Amtrak service and for a high-speed rail line between Phoenix and Las Vegas that includes a stop in Kingman

5.3 Non-Motorized

While most people use vehicles and/or transit for travel, almost every trip has a walking component. It is also important to recognize that some portions of the population rely on non-motorized means because they cannot or choose not to use vehicles. Most new urban street design and construction projects include facilities for bicycles and pedestrians. The following design elements should be considered to help create "complete streets".

- Provide continuous sidewalks and bicycle lanes
- Provide comfortable pedestrian and bicycle access to shopping, schools, and other activity centers
- Provide pedestrian facilities that meet ADA requirements

Specific non-motorized improvement recommendations include the following.

5.3.1 Add Bicycle and Pedestrian Facilities

- Harrison Street/Willow Road: Andy Devine Avenue to Gordon Drive
- Airway Avenue: Stockton Hill Road to Andy Devine Avenue
- Gordon Drive: Stockton Hill Road to Andy Devine Avenue

- Beverly Avenue: Willow Road to Bank Street
- Bank Street: Beverly Avenue to Northern Avenue
- Hualapai Mountain Road: Andy Devine Avenue to Seneca Street
- Northern Avenue: Stockton Hill Road to Bank Street
- Willow Road: Gordon Drive to Northern Avenue

5.3.2 New Multi-Use Pathway

- Eastern Pathway: Hualapai Mountain Road to Airway Avenue (Hualapai Mountain Road to Louise Avenue is included in the current City CIP)

5.3.3 ADA Improvements

- New sidewalk ramps
- Provide unobstructed sidewalk
- Shorter street crossings using curb "bulb-outs"
- ADA-compliant signal equipment

5.3.4 Safe Routes to School

- Pursue Safe Routes to School funding for bicycle and pedestrian improvements near schools

5.3.5 Traffic Signals

- Provide countdown pedestrian signal heads in accordance with the latest version of the Manual on Uniform Traffic Control Devices (MUTCD)

5.4 Safety

- Coordinate with the Western Arizona Council of Governments (WACOG) to identify possible federal funding sources to address the high-crash locations in the region.

5.5 Functional Classification Revisions

A review of the current functional classification of area roadways indicates that the proportion of collector roadways is higher than the FHWA recommendation. The following are recommended changes from urban collector classification to urban minor arterial classification. These changes must be reviewed with WACOG and submitted to ADOT.

- Airway Avenue: Western Avenue to Rancho Santa Fe Parkway
- Gordon Drive: Stockton Hill Road to SR 66/Andy Devine Avenue
- Northern Avenue: Stockton Hill Road to Castle Rock Road
- Harrison Street/Willow Road: Andy Devine Avenue to Airway Avenue
- Bank Street: Airway Avenue to Northern Avenue
- Hualapai Mountain Road: Andy Devine Avenue to Seneca Street

6 IMPLEMENTATION

An implementation plan was developed to prioritize the recommended improvement projects into short-range (2011-2015), mid-range (2016-2020), and long-range (2021-2030) timeframes. Specific improvements recommended in each implementation timeframe are listed in **Table 4** by mode. The cost estimate in 2011 dollars is $26.6 million for the short-range timeframe, $141.4 million for the mid-range timeframe, and $221.5 million for the long-range timeframe, for a total plan cost of $389.5 million.

The actual order of implementation will be based on a variety of factors, including funding availability, development activity, traffic patterns, and private participation. The need for improvements should be re-evaluated each year as part of the various implementing agencies' budget processes or as needed if conditions and travel patterns change significantly.

The overall transportation improvement plan, combining the short-range, mid-range, and long-range recommended improvements, is presented in **Figure 7**.

6.1 Revenue

Due to the recent economic conditions, the traditional transportation revenue sources have been reduced or temporarily eliminated. Highway User Revenue Fund (HURF) and general fund revenue have been reduced as a result of lower sales tax collection and reduced mileage. The State legislature has stopped distribution of the Local Transportation Assistance Fund (LTAF) to cities. Federal funding is still available, but Kingman typically must compete with other agencies to obtain it. Developer contributions (e.g., to dedicate roadway right-of-way and construct the half-street improvements) are expected to continue as new development occurs.

Because projected revenues are significantly less than the estimated costs of the recommended improvements, the City, the County, and ADOT will need to secure additional revenue sources if the recommended improvements are to be constructed within the recommended timeframes.

6.2 Title VI Impacts

The U.S. Department of Transportation regulations related to disadvantaged, or Title VI, populations (i.e., minority, low-income, elderly) state that in determining the site or location of transportation facilities, selection cannot be made with the purpose or effect of excluding persons from, denying them the benefits of, or subjecting them to discrimination under any program to which this regulation applies. According to the regulations, a project cannot be implemented that will cause disproportionately high and adverse impacts to disadvantaged populations.

The Kingman Area Transportation Study Update provides a long-range multi-modal plan to improve the overall transportation system of the region and benefit the region as a whole. Recommended improvement projects were not selected based on the population that would be impacted, but rather were selected to address an identified transportation need. More detailed analysis will be needed for individual projects that are federally-funded to ensure that there are no disproportionately high and adverse impacts to disadvantaged populations.

Table 4: Implementation Plan

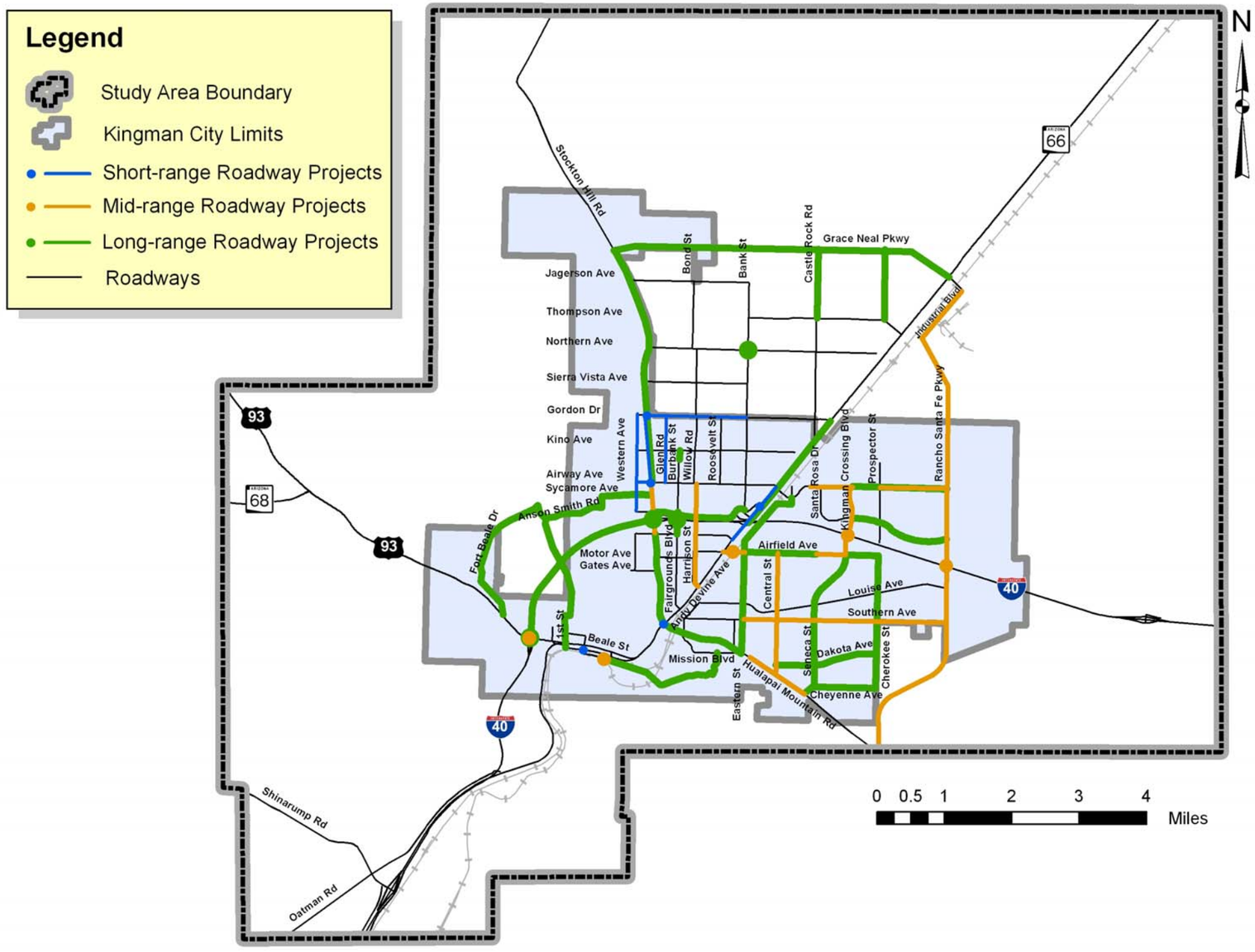
Project Location	Improvement Description	Cost (thousand $)		
		Short Range	Mid Range	Long Range
Short-Range Roadway Improvements				
Airfield Avenue	Design Concept Report for railroad grade separation	500		
Airway Avenue: Western Avenue to Stockton Hill Road	Widen to four lanes	1,000		
Andy Devine Avenue & 4th Street	Safety improvements	250		
Andy Devine Avenue/SR 66: Detroit Avenue to Airway Avenue	Raised median	250		
Downtown at-grade railroad crossings	Quiet zone improvements and establishment	350		
Glen Road: Airway Avenue to Gordon Drive	New two-lane collector	2,000		
Gordon Drive: Stockton Hill Road to Bank Street	Widen to four lanes	6,000		
I-40/US 93 TI	Design Concept and Environmental Study for system TI	500		
SR 66/Andy Devine Avenue & Armour Avenue	Safety improvements	250		
Stockton Hill Road: Andy Devine Avenue to Northern Avenue	Design Concept Report	500		
Stockton Hill Road & Airway Avenue	Intersection widening/safety improvements	2,500		
Stockton Hill Road & Gordon Drive	Intersection widening/safety improvements	2,500		
Stockton Hill Road/Hualapai Mountain Road & Andy Devine Avenue	Intersection widening/safety improvements	2,500		
Stockton Hill Road: Airway Avenue to Gordon Drive	Raised median	250		
Topeka Street	Design Concept Report for railroad grade separation	500		
Western Avenue: Beverly Avenue to Gordon Drive	Improved two-lane collector	3,000		
Short-Range Transit Improvements				
KART blue route	Provide 30-minute headways during peak periods	500*		
KART blue route	Add bus pull-outs and shelters	1,000		
Short-Range Non-Motorized Improvements				
Airway Avenue: Stockton Hill Road to Andy Devine Avenue	Add bike facilities	500		
Beverly Avenue: Harrison Street to Bank Street	Add bike and pedestrian facilities	250		
Downtown sidewalks	ADA-related improvements	1,000		
Eastern Pathway: Hualapai Mountain Road to Louise Avenue	Multi-use path	200		
Harrison Street/Willow Road: Andy Devine Avenue to Gordon Drive	Add bike and pedestrian facilities	625		
Safe routes to school	Various locations	150		
Subtotal Short-Range Improvements Cost*		**$26,575**		

Project Location	Improvement Description	Cost (thousand $)		
		Short Range	Mid Range	Long Range
Mid-Range Roadway Improvements				
Airfield Avenue: Seneca Street to Kingman Crossing Boulevard	New two-lane collector		1,000	
Airfield Avenue	Railroad grade separation		10,000	
Airway Avenue: Prospector Street to Rancho Santa Fe Parkway	New two-lane collector		2,000	
Airway Avenue: Sage Street to Kingman Crossing Boulevard	Widen to four lanes		2,000	
Central Street: Hualapai Mountain Road to Airfield Avenue	New/improved two-lane collector		4,000	
Fairgrounds Boulevard at I-40	Design Concept Report for grade separation		500	
Harrison Street/Willow Road: Andy Devine Avenue to Airway Avenue	Widen to four lanes		10,000	
Hualapai Mountain Road: Fripps Ranch Road to Seneca Street	Widen to four lanes		4,400	
Hualapai Mountain Road: Andy Devine Avenue to Eastern Street	Design Concept Report		250	
I-40: US 93 to Stockton Hill Road	Design Concept Report		500	
I-40/Stockton Hill Road TI improvements	Design Concept Report		500	
I-40/US 93 TI	Construct interim improvements		10,000	
I-40/Kingman Crossing Boulevard TI	Construct new interchange		25,000	
I-40/Rancho Santa Fe Parkway TI	Construct new interchange		25,000	
Industrial Boulevard: Rancho Santa Fe Parkway to Mohave Airport Drive	Improved two-lane collector		3,000	
Kingman Crossing Boulevard: I-40 to Airway Avenue	New four-lane arterial		3,000	
Kingman Crossing Boulevard: I-40 to Airfield Avenue	New four-lane arterial		800	
Rancho Santa Fe Parkway: Hualapai Mountain Road to Louise Avenue	New two-lane collector		5,000	
Rancho Santa Fe Parkway: Airway Avenue to Industrial Boulevard	New two-lane collector		5,000	
Rancho Santa Fe Parkway: Louise Avenue to Airway Avenue	New four-lane arterial		6,000	
Southern Avenue: Eastern Street to Rancho Santa Fe Parkway	New two-lane collector		6,000	
SR 66/Andy Devine Avenue: I-40 to Gordon Drive	Design Concept Report		500	
Stockton Hill Road: Detroit Avenue to Airway Avenue	Widen to six lanes		3,500	
Topeka Street	Railroad grade separation		10,000	

Project Location	Improvement Description	Cost (thousand $)		
		Short Range	Mid Range	Long Range
Mid-Range Transit Improvements				
All KART routes	30-minute headway during peak periods		1,500*	
All KART routes	Add bus pull-outs and shelters		2,000	
Gordon Drive	New KART route		500*	
New/modified route	Provide service to airport		500*	
Mid-Range Non-Motorized Improvements				
Bank Street: Beverly Avenue to Northern Avenue	Add bike and pedestrian facilities		625	
Eastern Pathway: Louise Avenue to Airfield Avenue	Multi-use path		200	
Gordon Drive: Stockton Hill Road to Andy Devine Avenue	Add bike and pedestrian facilities		625	
Subtotal Mid-Range Improvements Cost*			**$141,400**	
Long-Range Roadway Improvements				
Airfield Avenue: Eastern Street to Seneca Street	New/improved two-lane collector			3,000
Airfield Avenue: Kingman Crossing Boulevard to Cherokee Street	New two-lane collector			4,000
Airway Avenue: Kingman Crossing Boulevard to Rancho Santa Fe Parkway	Widen to four lanes			4,000
Andy Devine Avenue/SR 66: I-40 to Airway Avenue	Widen to six lanes			7,900
Anson Smith Road/White Cliffs Road: Stockton Hill Road to 1st Street	Improved two-lane collector			8,000
Bank Street and Northern Avenue	Intersection improvement			1,500
Beverly Avenue: Stockton Hill Road to Bank Street	Widen to four lanes			7,000
Castle Rock Road: Thompson Avenue to Grace Neal Parkway	New two-lane collector			2,000
Cherokee Street: Cheyenne Avenue to Airfield Avenue	New two-lane collector			4,000
Cheyenne Avenue: Hualapai Mountain Road to Cherokee Street	Improved two-lane collector			2,000
Dakota Avenue: Central Street to Cherokee Street	New/improved two-lane collector			3,000
Eastern Street: Hualapai Mountain Road to Airway Avenue	Widen to four lanes			8,000
Fairgrounds Boulevard/Burbank Street	Grade separation at I-40 and extend to Kino Avenue			12,000
Fort Beale Drive: Anson Smith Road to US 93	Improved two-lane collector			3,000
Grace Neal Parkway: Stockton Hill Road to SR 66	New four-lane arterial			22,000
Hualapai Mountain Road: Andy Devine Avenue to Eastern Street	Widen to six lanes			8,400

Project Location	Improvement Description	Cost (thousand $)		
		Short Range	Mid Range	Long Range
Long-Range Roadway Improvements				
I-40/Stockton Hill Road TI	Reconstruct TI/safety improvements			20,000
I-40: US 93 to Stockton Hill Road	Widen to six lanes			12,000
I-40/US 93 TI	Construct system interchange improvements			50,000
Kingman Crossing Boulevard: Airfield Avenue to Southern Avenue	New four-lane arterial			3,200
Prospector Street: Thompson Avenue to Grace Neal Parkway	New two-lane collector			2,000
Santa Rosa Drive: Kingman Crossing Boulevard to Rancho Santa Fe Parkway	New four-lane arterial			6,000
Seneca Street: Hualapai Mountain Road to Southern Avenue	Improved two-lane collector			2,500
SR 66/Andy Devine Avenue: Airway Avenue to Gordon Drive	Widen to six lanes			4,250
Stockton Hill Road: Northern Avenue to Jagerson Avenue	Widen to four lanes			6,000
Stockton Hill Road: Airway Avenue to Northern Avenue	Widen to six lanes			7,000
Stockton Hill Road: Andy Devine Avenue to Detroit Avenue	Widen to six lanes			4,400
Long-Range Transit Improvements				
All KART routes	Add bus pull-outs and shelters			2,000
Kino Avenue	New KART route			500*
Northern Avenue	New KART route			500*
Seneca Street/Kingman Crossing Boulevard	New KART route			500*
Southern Avenue	New KART route			500*
Transit transfer center	New facility			1,000
Long-Range Non-Motorized Improvements				
Eastern Pathway: Airfield Avenue to Airway Avenue	Multi-use path			200
Hualapai Mountain Road: Andy Devine Avenue to Seneca Street	Add bike and pedestrian facilities			500
Northern Avenue: Stockton Hill Road to Bank Street	Add bike and pedestrian facilities			375
Willow Road: Gordon Drive to Northern Avenue	Add bike and pedestrian facilities			250
Subtotal Long-Range Improvements Cost*				**$221,475**
Total Plan Cost*		**$389,450**		

*annual operating cost, not included in the total plan cost



Additional Projects – Short Range

Studies

- Design Concept Report
  - Airfield Avenue railroad grade separation
  - Topeka Street railroad grade separation
  - I-40/US 93 TI
  - Stockton Hill Road: Andy Devine Avenue to Northern Avenue
- Quiet zone improvements at downtown railroad crossings

Transit

- Provide 30-minute frequency during peak periods
  - KART blue route
- Add bus pull-outs and shelters
  - KART blue route

Non-Motorized

- Add bike facilities
  - Airway Avenue: Stockton Hill Road to Andy Devine Avenue
- Add bike and pedestrian facilities
  - Beverly Avenue: Harrison Street to Bank Street
  - Harrison Street/Willow Road: Andy Devine Avenue to Gordon Drive
- ADA-related improvements
  - Downtown sidewalks
- Multi-use path
  - Eastern Pathway: Hualapai Mountain Road to Louise Avenue
- Safe Routes to school
  - Various locations

Additional Projects – Mid Range

Studies

- Design Concept Report
  - Fairgrounds Boulevard grade separation at I-40
  - Hualapai Mountain Road: Andy Devine Avenue to Eastern Street
  - I-40: US 93 to Stockton Hill Road
  - I-40/Stockton Hill Road TI improvements
  - SR 66/Andy Devine Avenue: I-40 to Gordon Drive

Transit

- Provide 30-minute frequency during peak periods
  - All KART routes
- Add bus pull-outs and shelters
  - All KART routes
- New KART route
  - Gordon Drive
  - Service to airport

Non-Motorized

- Add bike and pedestrian facilities
  - Bank Street: Beverly Avenue to Northern Avenue
  - Gordon Drive: Stockton Hill Road to Andy Devine Avenue
- Multi-use path
  - Eastern Pathway: Louise Avenue to Airfield Avenue

Additional Projects – Long Range

Transit

- Add bus pull-outs and shelters
  - All KART routes
- New KART route
  - Kino Avenue
  - Northern Avenue
  - Seneca Street/Kingman Crossing Boulevard
  - Southern Avenue
- New transit transfer center

Non-Motorized

- Add bike and pedestrian facilities
  - Hualapai Mountain Road: Andy Devine Avenue to Seneca Street
  - Northern Avenue: Stockton Hill Road to Bank Street
  - Willow Road: Gordon Drive to Northern Avenue
- Multi-use path
  - Eastern Pathway: Airfield Avenue to Airway Avenue

Figure 7: Improvement Plan